

## **REMARKS**

### **Status of the Claims**

Claims 1-4 and 23-44 are pending.

Claims 1, 2, 4, 30, 35 and 38 have been amended.

Claims 5-22 have been cancelled.

### **Support for the Amendments**

Claim 1 has been amended to recite the following limitations, antecedent basis for which can be found on page 9, paragraph [0037] for the flow field channels, and on pages 12 and 13, paragraph [0048] and Fig. 3:

- providing a gas diffusion layer comprising a porous body comprising a plurality of pores, said gas diffusion layer abutting an electroconductive separator plate;
- wherein the electroconductive separator plate comprises a plurality of landing surfaces formed on a the first surface of the electroconductive separator plate and a flow field channel formed between the landing surfaces;
- welding the landing surfaces of the electroconductive separator plate to the gas diffusion layer by impregnating some of the polymer on the landing surface within the pores of the porous body; and
- thereby forming a plurality of welds between the landing surfaces and the gas diffusion layer spaced apart by the flow field channels.

No new matter has been added.

### **Claim Rejections: 35 USC § 112-Second Paragraph**

In [2] of the Office Action under 35 USC § 112, second paragraph claims 34 and 35 were rejected as being indefinite.

Applicants have amended claim 35 to depend on claim 1. The recitation of the blend in claim 35 should not be dependent on the recitation of thermoplastic polymer in claim 34. Instead, claim 35 recites the embodiment as disclosed on page 10, lines 9 – 12, which includes a thermoplastic polymers, partially fluorinated polymers and liquid crystalline polymers with maleic anhydride modified polymer. In addition, Claim 35 has been amended to remove extraneous term “preferably about 5 wt% to about 25 wt%”, and to recite that the “maleic anhydride modified polymer comprises about 5 wt% to about 25 wt% of the thermoplastic” for clarity. Accordingly, removal of this rejection is respectfully requested.

Claim 38 has also been amended for to remove the extraneous terms for clarity.

#### **Claim Rejections: 35 USC § 102(b)**

In [6] in the office action claims 1, 2, 36-37, 39-42 and 44 were rejected under 35 USC § 102(b) as anticipated by Davis et al., U.K. Patent Application Publication No. GB 2 326 017 A (hereinafter “Davis”).

Amended claim 1 is directed towards a process for joining a gas diffusion layer to a separator plate of an electrochemical cell. This process specifically recites welding the landing surfaces of the electroconductive separator plate to the gas diffusion layer ~~by impregnating~~ some of the polymer on the landing surface within the pores ~~a portion~~ of the porous body, thereby forming a plurality of welds between the landing surfaces and the gas diffusion layer spaced apart by the flow field channels.

Davis does not disclose or describe all the limitations as recited in the process of independent claim 1 and the claims dependent therefrom. First, Davis does not disclose a gas diffusion layer (GDL). Further, Davis does not disclose welding that produces welds that are spaced apart by flow field channels as now claimed. What is stated in Davis at page 6, lines 22 – 25, is that electrical conductivity must be maintained between an electrode and the bipolar plate, so that the electrical

conductivity is maintained. There is no disclosure of spaced apart welds as now claimed. Davis instead discloses is heat lamination of the landing surface to the cathode and anode electrodes. Applicants submit that heat lamination of Davis provides for the entire separator plate to be adhered to the MEA electrode, either directly or by way of an adhesive layer inserted between the separator plates and the electrode. Further, a skilled artisan would appreciate that Davis's heat lamination approach using pressure and heat will form *insulative* adhesive polymer layers and not the localized impregnated pores that provide for maintaining electrical contact with the GDL. Thus, Applicants submit that the Davis does not anticipate the claimed invention as asserted by the Examiner.

Accordingly removal of the rejection and allowance of claims 1, 2, 36-37, 39-42 and 44 is respectfully requested.

#### **Claim Rejections: 35 USC § 103(a)**

In [9] of the Office Action, Claims 3-4, 23-29, and 43 were rejected under 35 USC § 103(a) as being obvious over Davis in view of Ledjeff et al., U.S. Patent No. 5,733,678 (hereinafter "Ledjeff"), Burke, U.S. Patent No. 4,673,450 (hereinafter "Burke") and Marianowski, U.S. Patent No. 6,261,710 (hereinafter "Marianowski").

In [10] of the Office action, Claims 30-33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Davis and Ledjeff et al. as applied to claim 29 above, further in view of Scherer, U.S. Patent No. 3,860,468.

In [11] of the Office action, Claims 35 was rejected under 35 U.S.C. 103(a) as being unpatentable over Davis in view of Takagi.

It is respectfully submitted that neither of Ledjeff et al., Burke, Marianowski, or Takagi cures the deficiencies of Davis as discussed above.

#### **Double Patenting**

In [13] of the Office Action claims 39-44 have been provisionally rejected over claims 1-44 and 12-24 of U.S. App. No. 10/550423.

In [14] of the Office Action claims 1-4 and 23-44 have been provisionally

rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 27-52 of copending Application No. 10/550,424 in view of Ledjeff .

Applicants request the Examiner to hold the double patenting rejections in abeyance until allowable subject matter has been identified.

In view of the foregoing, allowance of Claims 1-4 and 23-44 of the above-referenced application is respectfully requested.

Respectfully submitted,

/JANE O. HAMBY/

**JANE O HAMBY**  
ATTORNEY FOR APPLICANTS  
Registration No.: 32,872  
Telephone: (302) 892-7907  
Facsimile: (302) 892-0699

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